BIBLIOGRAPHICAL NOTICES.

Art. XV.—1. *The Diagnosis, Pathology, and Treatment of the Diseases of the Chest.* By W. W. Gerhard, M. D., Lecturer on Clinical Medicine to the University of Pennsylvania, &c. Second edition, revised, and enlarged. 8vo. pp. 288. Philadelphia: Barrington & Haswell, 1846.

2. *The Young Stethoscopist, or the Student's aid to Auscultation.* By Henry J. Bowditch, M. D. 12mo. pp. 278. N. York: J. & H. G. Langley; Boston, William D. Ticknor & Co. 1846.

3. *A Clinical Introduction to the Practice of Auscultation and other modes of Physical Diagnosis, intended to simplify the study of the Diseases of the Lungs and Heart.* By H. M. Hughes, M. D., Fellow of the Royal College of Physicians, &c. 12mo. pp. 270. Philadelphia: Lea & Blanchard, 1846.

4. *Manual of Diagnosis of Diseases of the Heart, preceded by Clinical Researches for the study of these affections.* By Dr. Felix Andry, Ex-chef de clinique, at the Hospital of La Charité. Translated from the French by Samuel Kneeland, Jr., A. M., M. D. 12mo. pp. 168. Boston: W. D. Ticknor & Co. 1846.

If medical students and practitioners are not now well versed in physical diagnosis, it is certainly not because there is any lack of treatises upon the subject. The medical press teems with them of every form and size. Hardly has one been issued, before another calls for notice, claiming to supply the deficiencies or correct the errors of its predecessors. Stokes, and Williams, and Raciborski, and Walshe, and Barth and Roger, have all in turn been commended to students of medicine, and now to swell the throng of candidates for public favour appear three new names, and one, already known and honoured, with fresh claims to our regard. If this multiplication of instructors might be fairly considered an evidence of an increased interest in the subject of physical diagnosis, or as a proof of perfected knowledge amongst the younger members of the profession, it were well, and we should hail it as an omen of scientific advancement. But there is some reason to fear that the case is far otherwise; that while the means of learning the theory of auscultation, &c., are more than ever within reach, the opportunities for applying it to practice are diminished, and those which are still accessible, singularly and systematically neglected. The very best of the treatises mentioned are almost worthless unless expounded by a living teacher, and illustrated at the bed-side. They are worse than worthless; they are pernicious: they lead to positive error. Unless the student be told what are the sounds he hears in auscultation, unless one more experienced than himself inform him of the name of every sound, and present to his ear the sound corresponding to every name; the descriptions and definitions of his "Manual" must continue meaningless to him; or if, by chance or skill, he now and then succeeds in rightly coupling the characters of a rhonchus with its corresponding name, he can never feel assured of the fact until it is corroborated by a living teacher. He is as little qualified to interpret acoustic signs, as one who has learned to read a foreign language by the help of dictionary and grammar, is to translate that language when he hears it spoken. Those who have honestly made the experiment of learning auscultation through books alone, will be the very first to admit the justness of these views. For the beginner, clinical instruction in auscultation is essential. The more he listens, and the less he reads, the surer and more rapid will be his progress. When once his ear is familiarized to the new language, he may study with advantage its theory; indeed he *must* then study it in order to perceive the principle which pervades the phenomena he has witnessed, and to acquire the power of analyzing and interpreting them in whatever new combinations they may occur.

Treatises on auscultation, then, are valuable, not as introductions to the elements of the subject, but as keys for their explanation. Of course their value will depend upon various circumstances; upon their clearness of style and logical arrangement; the accordance of their theory with the facts revealed by observation; their greater or less exactness of description; their minuteness and completeness of analysis; their correct measurement of the significance of sounds, both positive and differential, &c. In these respects there is as much difference among them, as among the grammars of a language: some of them are as defective in principle and clumsy in execution, as others are logical and elegant, while in all, the essential elements,—those discovered by Laennec,—may perhaps exist in nearly the same degree.

The first of the works named at the head of this notice is not to be classed with the others, except in so far as it comprises an ample discussion of physical diagnosis. It is also a complete exposition of the pathology and treatment of thoracic diseases. It not only explains the method and describes its application, but also sets their just value upon the results which it furnishes, by arranging them along with the functional symptoms, and the pathological anatomy of each disease. This is the best refutation of the charges which are constantly made against physical exploration in medicine, by those who appear to imagine that science can never advance beyond the point at which they ceased to learn. "Deductions from the whole of the physical signs and functional symptoms constitute the diagnosis, and not the naked examination of a single set of them," says Dr. Gerhard; and again, the results of auscultation, &c., are by him "regarded as more useful than any symptoms taken singly, but as neither the only class of symptoms to be relied upon, nor as superseding the general signs." In his opening chapter he insists strenuously upon this proposition, and throughout the whole work he develops and illustrates it. Indeed the clear and complete manner in which this is done, forms the distinctive character of the treatise, and its peculiar merit; a merit which we do not equally recognize in any other English work on diseases of the chest, except that of Dr. Stokes, which, however, is less rich in details than is required by the present state of medical science. The Dublin Professor, and Dr. Gerhard, appear to be agreed that, in the words of the latter, "the same mental discipline, and the same rules of philosophizing are required" in medicine as in other sciences; and, accordingly, the arrangement of their materials by these authors strikes the reader at once as an instance of logical sequence, and an example of sound medical reasoning. They reach the point aimed at by successive and sure steps, but neither fly nor jump to a conclusion. It were devoutly to be wished that medical writers, generally, could be persuaded that something more than an acquaintance with text books, and the art of prescribing, is necessary to fit a man for being an author or a teacher; that there is such a thing as medical philosophy, an art of observing, and reasoning, without which they must labour in vain for their own enlightenment or the instruction of others; that education, and discipline, and industry, which in the simpler days of our forefathers, were supposed to be necessary for a scientific man, are, in truth, quite as needful now, though they have almost ceased to be thought so. If such a persuasion were general, we should not so often have to lament the publication of unreadable essays by men of real but undisciplined ability, and we should have the satisfaction of hailing more frequent and more valuable additions to the permanent medical literature of the country.

While the reasoning of Dr. Gerhard appears to us worthy of all commendation we are compelled to express a less favourable opinion of his style, which too often gives evidence of haste or carelessness. In a second edition this defect is the less excusable, for the labour of a few hours would have sufficed to correct all inaccuracies, and redeem the work from its only conspicuous blemishes.

2. Dr. Bowditch's Manual is of very modest pretensions, addressing itself only to the student, and referring him to more elaborate treatises for the details of physical diagnosis. It is purely elementary, and does not claim to set forth any novelties; but there are an accuracy, a freshness, and a vivacity in its composition, which absolve it from the suspicion of being a mere compilation, and give it the air of a purely original work. The author appears to have the two great requisites for the office of teacher, a thorough understanding of his subject, and much ease in com-

municating his ideas. He has made his little book quite an illustrated edition, by adorning it with correct wood-cuts of all the different forms of stethoscopes, and other instruments employed in auscultation and percussion, and by having the capital letters at the commencement of several chapters formed by these instruments, or by groups of them,—a very ingenious artistic device. The first two-thirds of the work are equally divided between the discussion of diseases of the lungs and heart, and in the remaining third, there are concise accounts of auscultation applied to pregnancy, to diseases of the brain, and to fractures, with a notice of Messrs. Cammann and Clark's method of auscultatory percussion, and a summary of what is known in veterinary auscultation. These subjects are treated at sufficient length to fulfil the author's purpose, and with that precision and facility which all would anticipate who know his untiring industry, his sagacity and honesty as an observer, and the rare opportunities he has enjoyed for exercising and perfecting his skill.

3. The first thing that struck us on opening Dr. Hughes' "Clinical Introduction," was the difference of its style from that of the two works just noticed. It is perfectly free from those colloquial and even trivial phrases with which they are too often defaced, and if it makes no pretension to elegance, it is everywhere at least correct and scholar-like. Why is it that our writers are so negligent of the graces of composition, and that, for the most part, they seem to set at defiance all grammatical rules? Though not a few British physicians are open to a similar charge of negligence, it must be confessed that most of the English medical publications are remarkable for a pure and elevated style rather than the opposite. Without by any means offering Dr. Hughes' style as a model of elegance, it may be described as plain and perspicuous. His sentences have this one great advantage over those of some writers we could name,—they can all be parsed.

The general plan of Dr. Hughes' work is that of MM. Barth and Roger, comprising directions and cautions for the examiner, an explanation of the method, (percussion or auscultation, &c.); a description of the sounds, &c., which it furnishes, and an indication of the diseases in which the several signs occur. In the Preface, the author bestows very warm but merited praise on the "admirable little book of Barth and Roger," but complains that it treats of auscultation alone. Dr. Hughes seems not to have been aware that a second edition of MM. Barth and Roger's work was published in 1843, which includes an essay upon percussion; for had he known it, he would scarcely have ventured the assertion, "that a work was wanted in which should be simply explained to the student, not merely the origin, character, and diagnostic value of certain physical signs, but also the manner in which he should proceed to elicit them; and which should direct him how to percuss, as well as state the indications afforded by percussion." All this, and more, had been done by MM. Barth and Roger, and we are constrained to say, (highly as we esteem Dr. Hughes' essay,) much better done, more fully, more logically, more practically done. Under the circumstances, then, we think that the publication of a new manual was needless. But passing over this question of expediency, and comparing the work with others of English origin, it must be admitted to be the best *elementary* exposition of the signs, and the causes of the signs, of thoracic diseases, and of the mode in which a knowledge of them is to be obtained. Inferior to the treatise of Dr. Walshe as a guide to the diagnosis of diseases, an office which the author expressly disclaims for it, it is superior to that work in plainness of meaning and simplicity of arrangement, and in the avoidance of those nice distinctions and multiplied terms which are perplexing and discouraging to the student, although well appreciated by the experienced observer. For the beginner, especially for one whose opportunities for oral instruction are imperfect, Dr. Hughes' work appears to us peculiarly adapted; it will teach him in the best manner, all of auscultation and percussion that it is possible to learn through such a medium.

4. We have hardly alluded to the portions of the foregoing treatises devoted to diseases of the heart, because we intend to make some remarks applicable to them all while noticing Dr. Andry's Manual. The greater part of it is occupied by the details of twenty-one fatal cases of cardiac disease, including the symp-

toms of each during life, the diagnosis then made, the dissection, and finally, the inferences to be drawn from the whole history. The simplest cases are first considered, to wit, those of hypertrophy alone, and afterwards the more complicated forms of valvular disease. Such of these as we have read, and were able to understand, in their English dress, are interesting, and serve very well to illustrate the principles of cardiac pathology, though not always the principles of Dr. Andry, nor of his teacher and exemplar M. Bouillaud, whose spirit breathes through all the pages of the work. Everywhere uncompromising dogmatism startles the reader from his philosophic hesitation, and the most ingenious sophistry makes facts seem as pliant as if truth were a matter of mere indifference or caprice. The "cases" are preceded by a theory of the sounds of the heart, and followed by the application of this theory to the murmurs and other signs of heart-disease. It is in the main identical with that of Hope, Williams, and others, including the authors of the works just noticed, none of whom, any more than Dr. Andry, seem to be aware that serious objections may be brought against it, or that some portions of it are, perhaps, untenable.

All these writers agree that the impulse of the heart is owing entirely to the systole of its ventricles, and consequently that the first sound, which is synchronous with the impulse, is due to that contraction, or to something that takes place simultaneously with it. It is unnecessary to inquire into the origin of this doctrine on the present occasion; let us briefly examine the objections to its being received. And, first, the shock of the heart against the parietes of the thorax is not confined to its apex; in most thin persons, and in others who have some enlargement of the organ, there is a distinct movement of the parietes of the chest opposite the ventricles, before that of the apex is perceived. Now admitting that during the systole the apex is tilted upwards so as to strike the ribs, how is the previous shock to be explained? Can a hollow muscle increase in bulk while effacing its cavity? Assuredly not. The body of the ventricle, during the systole, must retire from the ribs; it can strike them only during the diastole. This appears to us an inevitable conclusion from the premises, and depends upon established physical laws, but it is also demonstrated by direct experiment. And here we leave out of view all those experiments performed on warm-blooded animals, where the circulation is maintained by artificial respiration. However valuable they may be for localizing the sounds of the heart, they are rendered quite worthless for illustrating the rhythm of its movements, by the state of congestion of all the cardiac cavities. But in vivisections of cold-blooded animals, as of frogs, the slower movements of the heart, and the more natural respiration, permit the action of the organ to be studied. The uniform testimony of competent observers of this point is that during the *diastole* the heart swells up towards the external wound, but that during the systole it buries itself in the thorax. The case of congenital protrusion of the heart reported by Cruveilhier, and quoted by Dr. Carpenter in his Physiology, is to the same purpose; "the diastole of the ventricle had the rapidity and energy of an active movement, triumphing over pressure made upon the organ, so that the hand closed upon it was opened with violence." A similar case, too, reported by Dr. Robinson, of Va., (*Am. Journal*, Feb. 1833,) demonstrates the same activity of the ventricular diastole. Indeed this was the doctrine both of Harvey and Haller. Physiological observation, therefore, would teach us that the impulse of the heart is chiefly due to the ventricular diastole. We now proceed to show that its teaching is confirmed by pathology.

It is curious to observe how blind men are to the most evident facts when once they have pledged themselves in support of a theory. As a matter of course they who believe the impulsion of the heart to depend entirely upon its systole, teach that the impulse is strong in proportion to the development of the ventricle; that hypertrophy of this part is always attended with increased impulse. Dr. Gerhard affirms that "as in hypertrophy, the size is necessarily increased, while the tissue of the heart becomes stronger and firmer, there is necessarily an increase in the power of impulsion." Dr. Bowditch, that "the impulse is synchronous with the contraction of the ventricles," and that "it is most strikingly increased by hypertrophy:"—Dr. Hughes, that "when hypertrophy exists, of the ventricles or of the auricles, but of the left ventricle more especially, the impulse is powerful and heaving;" and finally, Dr. Andry, "if the heart often beats with such force where the ventricular contractions are only momentarily increased, there is still greater reason for its doing so when the increase is permanent and organic, as in hypertrophy." One would suppose that such uniformity of doctrine could only result from great clearness and constancy in the evidence of facts; that it was a legitimate induction from many well-observed cases of hypertrophy. And yet it is no more than a deduction from an imperfect theory; the testimony of observation is directly adverse to its truth. That we may not be accused of packing a jury to try this cause, let us analyze the cases detailed by Dr. Andry, the first that present themselves, and which their reporter hardly imagined could bear witness against his doctrine. We premise that, according to Dr. Andry, the ordinary weight of a healthy adult heart is eight or nine ounces.

Case 1. Impulse not mentioned. Hypertrophy great, confined to left ventricle.

Case 3. Impulse hardly perceptible. Auricles *dilated;* left ventricle one inch thick at base.

Case 4. Impulse not mentioned. Left ventricle hypertrophied; four-fifth inches thick; auricles natural; heart weighs 11 oz.

Case 5. Impulse feeble. Ventricles enormously hypertrophied; auricles *dilated;* weight 25 oz.!

Case 6. Impulse not mentioned. Left ventricle one inch at base; auricles natural; weight 16 oz.

Case 20. Impulse feeble. Left ventricle *only* hypertrophied; auricles not described; weight 15 oz.

Here are six of the cases, the only ones in which the impulse is described either as feeble, or from not being described at all, we must presume to have been at least no greater than natural; yet in every one of them the hypertrophy was considerable, in one excessive, and in all confined to the ventricles. Why was not the impulse strong in these cases? They present all the conditions required by theory for producing this result; but the result is wanting. Do they therefore invalidate the theory? Let the reader judge. But this group of cases has not yet furnished all its evidence. Observe that in the third and fifth cases in which the impulse is noted as feeble, the auricles were found *dilated;* that in the twentieth case, in which also the impulse was feeble, the auricles are not described at all and may therefore be assumed as natural; and that in the fourth and sixth cases, in which the impulse is not mentioned, the auricles are said to be natural. Are this dilatation of the auricles, with a feeble impulse, and this normal condition of the auricles with a natural impulse, mere coincidences? Let us endeavour to find a reply to this question by contrasting with the foregoing cases those in which there was a strong præcordial impulse.

Case 10. Impulse strong. Dilatation and hypertrophy of both *auricles* and ventricles; weight of heart 15 oz.

Case 13. Dull heavy sound of a shock. Hypertrophy of left ventricle and both *auricles;* weight 16 oz.

Case 14. Impulse strong and extensive. Hypertrophy, with dilatation of right ventricle and *auricle;* columnæ of *auricle* double their normal size.

Case 21. Impulse strong. Columnæ of right, and walls of left *auricle* hypertrophied.

Case 18. "Pulse small, disproportioned to the force of the heart's beatings." Ventricles slightly hypertrophied; both *auricles* dilated and much hypertrophied.

These are all the cases, except one, in the series before us in which the impulse is clearly described as vigorous. What element do they present in common with those of the first group? Hypertrophy of the ventricle. Yet in the one group the impulse is strong, in the other feeble or natural. What element belongs to the second different from any existing in the first group? Hypertrophy of the auricle. Does the difference of function then depend upon the difference of lesion? does abnormal impulse proceed from auricular hypertrophy? We do not see how any other than an affirmative answer can be given to this question. If it be first proved that simple ventricular hypertrophy does not coincide with augmented impulse; then that auricular hypertrophy uniformly does; and further, that auricular dilatation is accompanied with a feeble impulse; the conclusion does appear to us inevitable that the impulse of the heart is chiefly due to the contraction of its auricles. Does not, then, pathology confirm the conclusions of physiology upon this subject? We shall present one other pathological consideration before leaving this discussion. It is well known that there is sometimes a want of correspondence between the præcordial and the radial pulses, that, for instance, there may be two or three of the former to one of the latter. Here is a fact which ought to have shaken confidence in the theory of Bouillaud and Hope; for how could the ventricle contract without propelling its contents into the aorta and causing an arterial pulse. To avoid this palpable objection Bouillaud resorts to a supposition which it is almost incredible that so sagacious a physician should for a moment entertain; to wit, that the ventricle being incompletely filled on account of an auriculo-ventricular contraction, *beats almost empty*. But though it contain never so little blood, its contraction will propel that little, and produce an arterial pulse. This is not a case like that of approaching death, when the blood accumulates in the trunk, and the heart is so feeble that the artery at the wrist is empty, although the carotid perhaps throbs in unison with the heart. In the case we are considering there are two or more blows in the præcordium for one pulse in *any* part of the arterial system. No blood whatever leaves the heart at the first impulse. How then can the impulse be owing to contraction of the ventricle? But if the impulse be regarded as dependent upon the diastole, the case is plain. The mitral orifice is contracted, the first systole of the auricle cannot force enough blood through it to excite the ventricle to contraction, but enough only to cause a slight impulse, a second or third systole of the auricle renews the impulse and completes the repletion of the ventricle which then contracts. The fact of distinct murmurs accompanying these supernumerary impulses, when the edges of the mitral orifice are roughened, illustrates and confirms this view.

The foregoing considerations would appear to warrant the conclusion that the impulse of the heart is mainly due to the ventricular diastole which, in its turn depends upon the auricular systole, a conclusion which might have been supported by many other facts than those adduced, and especially by many drawn from the nature and succession of cardiac murmurs. We have not leisure at present to enter upon this interesting discussion, but would refer those of our readers who desire to examine it, to the treatises of Harvey and of Haller, and to the essays of MM. Beau, Fauvel, Guyot, Hardy, and Behier, and especially to the "*Pathologie Générale*" of the latter two gentlemen. Meanwhile we shall state, in a very few words, the theory which appears to us to rest upon true observation. During the long pause the ventricle remains contracted, and the auricle fills up with blood; during the first sound the auricle contracts forcibly, dilating the ventricle and causing part of the impulse, and then *without any intermission* the ventricle contracts, striking its apex against the thorax;—the first sound is caused by the passage of blood through the orifices, by its irruption into the ventricle, by the diastolic and systolic impulses, by the closure of the auriculo-ventricular valve, and by the muscular contraction of the walls of the heart. The second sound is synchronous with, and caused by the flapping of the semilunar valves. We feel assured that any of our readers who are conversant with diseases of the heart will be able to explain, by means of this theory, all accurately observed cases with a much less expenditure of ingenuity than is wasted by Dr. Andry in accommodating his "observations" to the prevalent doctrine, and much less violence to common sense than is done by Dr. Hope in the following passage. The diastolic impulse "is occasioned by the diastole of the ventricles, during which action the heart sinks back from the walls of the chest, and this sinking back terminates in a jog or shock, occasioned by the refilling of the ventricles."

Of the translation of Dr. Andry's Manual we should be glad to speak with approbation, were it possible. If the translator were not well acquainted with the English language there would be less occasion for our complaining of the execution of his work; but more than one paper by the same hand in this Journal attests his competency. We are, therefore, reluctantly compelled to conclude that carelessness, and not want of skill, is to be charged with the Gallicisms which disfigure almost every page of the translation, and which none but a person having some knowledge of the French language would be likely to interpret correctly. It is a common error to suppose that translating, even from a language one both reads and speaks fluently, is an easy task. We are persuaded that among translators there are very few, even of the most competent of them, who do not compose with greater ease and purity than they translate. It is an art slowly and laboriously acquired, to transfer the ideas of an author from one to another idiom, so that they shall appear to have been originally written in the latter; and it is one which we earnestly commend to the study of all our translators, present and future, of French medical works. A. S.

ART. XVI.—*Report to the Committee of the City Council appointed to obtain the Census of Boston, for the year* 1845, *embracing collateral facts and statistical researches, illustrating the history and condition of the population, and their means of progress and prosperity.* By LEMUEL SHATTUCK. Boston, 1846.

THIS is a handsome octavo volume, containing 275 pages, with two maps, one exhibiting Boston and its environs on a large scale, the other presenting a sketch of the State of Massachusetts, together with the neighbouring States of Rhode Island, and parts of New Hampshire and New York. Instead of the ordinary meagre decennial census, with a few collateral facts, Mr. Shattuck, the able statistician, whose valuable labours we have so frequently had occasion to notice, presents us in his report with almost every particular which can serve to throw light upon the condition of the population of the flourishing city of Boston. The following topics have received particular attention:

1. Historical notices of the population. 2. Errors of the national census of 1840. 3. Mode of taking the census of 1845. 4. Numbers of the population in 1845, and its past increase. 5. Population of the wards and sections. 6. Places of birth of the population. 7. Classes of the population in regard to colour, sex and age. 8. Dwelling houses of the population. 9. Supply of water. 10. Domestic condition. 11. Education. 12. Legal voters. 13. Occupations. 14. Progressive wealth. 15. Public charities. 16. Pauperism. 17. Crimes. 18. Moral and religious institutions. 19. Births, marriages and deaths. 20. Health. 21. Government. 22. General views and conclusions.

The information upon these several topics, though presented with as much brevity as the occasion admitted of, covers a wide field of investigation. It must all prove more or less interesting at home, whilst much will be acceptable to the distant and general inquirer. The ordinary limits of a bibliographical notice will not, of course, admit of more than a passing glance at some of the contents of Mr. Shattuck's valuable book.

By his enumeration it appears that the population of Boston in 1845, amounts to 114,366. The coloured people comprise only 1,842, or 1.61 per cent., whilst the foreigners and their children amount to no less than 37,289, being 32.61 per cent. of the whole population. The proportion of males to females in the general population is as 100 to 101.03. This very trifling disparity is regarded as a sign of the great prosperity of the place, in consequence of which large numbers of young men are attracted to the city for the purposes of trade or labour.

Births.—Considering how much has been done by Massachusetts in collecting information calculated to show the condition of the people and their resources, it is somewhat surprising that her metropolis should have no regular provision for registering the number of births which annually take place. At several periods imperfect registers have been kept, but as these generally depended upon the record of baptisms, it is evident that they must be partial in a country without a regular church establishment. The plan of keeping a register of the practitioners of midwifery, and making it obligatory on them to report the births coming under their cognizance, sending an officer of the board of health to collect their returns at stated periods, will do all that may be necessary towards obtaining the desired information.

Mr. Shattuck makes the following sensible observations under the head of

Public Health.—"No subject is more intimately connected with the prosperity and happiness of a people, than the degree of public health that they enjoy. Some places and some circumstances are known to be more favourable than others to the development and prolongation of the vital energies of man; and it is a matter of the greatest moment to the whole population collectively, and to each